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The Supply-Side Reforms of the Chinese Economy



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A married couple working in a toilet
factory in China

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The Supply-Side Reforms of the Chinese Economy

The Chinese economy is, today, one of the most dynamic economic powers in the world. Issue 55 of *Social Science Japan* newsletter features five articles on the Chinese economy, shedding light on a few of its different features, global and domestic. Marukawa Tomoo analyses the impact economic fluctuations in China have on the global economy, especially the effects they have on the resource-rich countries that export heavily to China. Ito Asei explains directions in which the Chinese government is taking its economic reforms and discusses various policies China is pursuing in reaction to the recent slowdown in economic growth.

Looking from the inside, Xue Yiqun provides a detailed account of the evolution of the telecommunication industry in China and how private entrepreneurship and government interventions have shaped the process. Focusing on the transitional phase the Chinese economy is now going through, Zhi Ruizhi and Zhang Yu make policy recommendations. Zhi argues that there should be an increase in governmental R&D funding and a broadening of funding sources to support and nurture the innovative power of high-tech industries in China. Zhang explores the reasons behind China's economic slowdowns and suggests ways to make Chinese firms become more innovation-driven and competitive in new industrial fields. Looking at a topic involving Japan, Song Shilei examines *bakugai*, the "explosive buying" of Chinese tourists in Japan. Song analyzes it as consumer behavior and from consumer perspectives and points out what needs to be done to redirect purchasing power toward domestic consumption in China.

ISS Research Report features Ayako Kondo. She introduces her research that explores how business cycle conditions and the timing of entry into the job market affect life and earning prospects of new graduates.

Recent publications by ISS staff and speakers for the ISS Contemporary Japan Group are listed for those interested in a glimpse at exciting new social science research on Japan. Focus on ISS continues its introduction of the Kamaishi Hope Study Project begun in the last issue.

Managing Editor, Ikeda Yoko

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The Impact of China's Economic Fluctuations on the Global Economy

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There is a saying in business journalism that “when America sneezes, the world catches a cold.” This metaphor indicates not only that the size of the U.S. economy in relation to the global economy is large but also that the U.S. economy influences the rest of the world, not vice versa. As the size of China's import value approaches that of the United States, which was 81% and 73% of U.S. imports in 2014 and 2015, respectively, it is likely that fluctuations in the Chinese economy will have a similar impact on the global economy, or, at least, on the economies that are highly dependent on exports to China. For example, the ups and downs of China's iron and steel industry will likely influence major iron ore exporters because China imports roughly two-thirds of the iron ore traded internationally. Indeed, the rapid rise of iron ore price from 2005 to 2011 was caused by China's growing appetite for iron ore (Wilson 2012), and its subsequent decline was caused by the deceleration of growth in the Chinese iron and steel industry. Fluctuations in iron ore prices are likely to have significant influences on the

economy of iron ore exporters like Australia, Brazil, and India—they increased six-fold from April 2005 to April 2011 and by the end of 2015 had dropped to 22% of their April 2011 level. This essay examines the impact of China's economic fluctuations on the rest of the world through trade.

The Impact of Fluctuations in China's Imports

China's share in global imports has risen from 3.3% in 2000 to 9.0% in 2010 and 10.3% in 2014. The degree of each country's export dependence on China is, of course, diverse. The share of exports to China of total exports was less than 3% in each of the 88 of 187 countries and regions for which trade data were available. It is unlikely that fluctuations in demand from China have a significant impact on the economy of these countries and regions. The Pearson correlation coefficient (r) of a country's GDP growth rate in a certain year ($Growth_{it}$) and its growth rate of exports to China in the same year ($GrowthExChina_{it}$) is -0.018, if we take all the 187 countries and regions into account, indicating that the two are hardly correlated.

In the following, we will limit the scope of analysis to the 55 countries and regions in which exports to China accounted for more than 9% of total exports on average during 2007-2014. The impact of fluctuations in exports to China on GDP growth is examined by constructing panel data for the period of 2007-2015. The following model is estimated:

$$Growth_{it} = A + b_1 Investment_{it} + b_2 Inflation_{it} + b_3 GrowthExChina_{it} + \gamma_i + \varepsilon_{it}$$

The independent variables include: a country's total investment measured as a share of GDP ($Investment_{it}$), which Sachs and Warner (2001) find to have a positive influence on economic growth; a country's inflation rate ($Inflation_{it}$), which has an adverse impact on growth (Barro 1995); and the growth rate of exports to China compared to the previous year, which is the focus of our analysis.

The value of exports from a country to China is measured by the value of imports by China from the country. The reason we use China's import statistics here is because there is often a large gap between a country's exports to China and China's imports from the country. In the case of South Africa and China, for example, imports from South Africa reported in Chinese trade statistics were 2.6-5.1 times greater in value terms than exports to China reported in South African trade statistics from 2011 to 2014. Sandrey et al. (2015) guess that the gap consisted of gold exports from South Africa, the destination of which is unidentified in South African trade statistics. In the case of other countries' trade with China, entrepôt trade through Hong Kong results in anomalies in trade statistics.

The estimation results are reported in Table 1. Six countries and regions were dropped due to a lack of data. The coefficients of investment and inflation have signs that are consistent with our expectation and are statistically significant. The coefficients of growth rate of exports to China in both fixed effect and random effect models are positive and statistically significant, implying that a 10 percentage-point increase in the annual growth of exports to China will lead to 0.02% increase in the annual GDP growth rate. The F-test and LM-test suggest that fixed effect and random effect models are preferred to pooled OLS. The Hausman test suggests that the fixed effect model is not necessarily superior to the random effect model.

If we further limit the scope of analysis to the 27 countries and regions in which China's share in total exports exceeds 20%, the coefficient of *GrowthExChina* will rise to 0.0056. In 2010, 2011, and 2012, exports from these countries to China increased by 145%, 64%, and 74% on average, pushing their GDP growth rates up by 0.81, 0.36, and 0.41 percentage points, respectively. But in 2015, exports to China decreased by 18% on average, pushing their growth rates down by 0.10 percentage points. We can see that fluctuations in demand from China had significant effects on the growth rate of these countries.

Countries that are Dependent on China

The countries whose exports depend heavily on China in many cases export only a limited variety of primary commodities. Table 2 shows a list of countries with high ratios of exports to China in total exports (*ExCh*), their main export items, and the share of these items in total exports to China. In the case of the Solomon Islands, which exported 101% of its total exports to China on average during 2007-2014 (this anomaly arises from using China's import statistics to measure Solomon Island exports to China), almost all of its exports consisted of "wood in the rough." In the case of Mongolia, 52% of its exports to China consisted of "copper ores and concentrates," followed by coal (19%) and crude oil (14%). With the exception of Taiwan, the Philippines, Costa Rica, and South Korea, exports from all countries and regions in Table 2 concentrate on one kind of primary commodity.

Table 1. Panel data analyses of GDP growth rate and export growth to China Dependent Variable GDP Growth Rate

	(1)	(2)
Investment	0.094 ** (2.00)	0.064 ** (1.96)
Inflation	-0.099 *** (-2.91)	-0.071 ** (-2.49)
GrowthExChina	0.0020 * (1.87)	0.0020 ** (1.97)
Constant	2.446 ** (1.99)	2.985 *** (3.20)
	fixed effect	random effect
Obs	430	430
No of groups	48	48
R-Square	0.27	
F-test: $\gamma_i=0$	2.75 ***	
LM-test: $\text{Var}(\gamma)=0$		39.62 ***
Hausman test		3.71

t-statistics are presented in brackets

*** Statistical significance at the 1% level

** Statistical significance at the 5% level

* Statistical significance at the 10% level

Table 2. Countries and regions that are dependent on China in their exports and their main export items

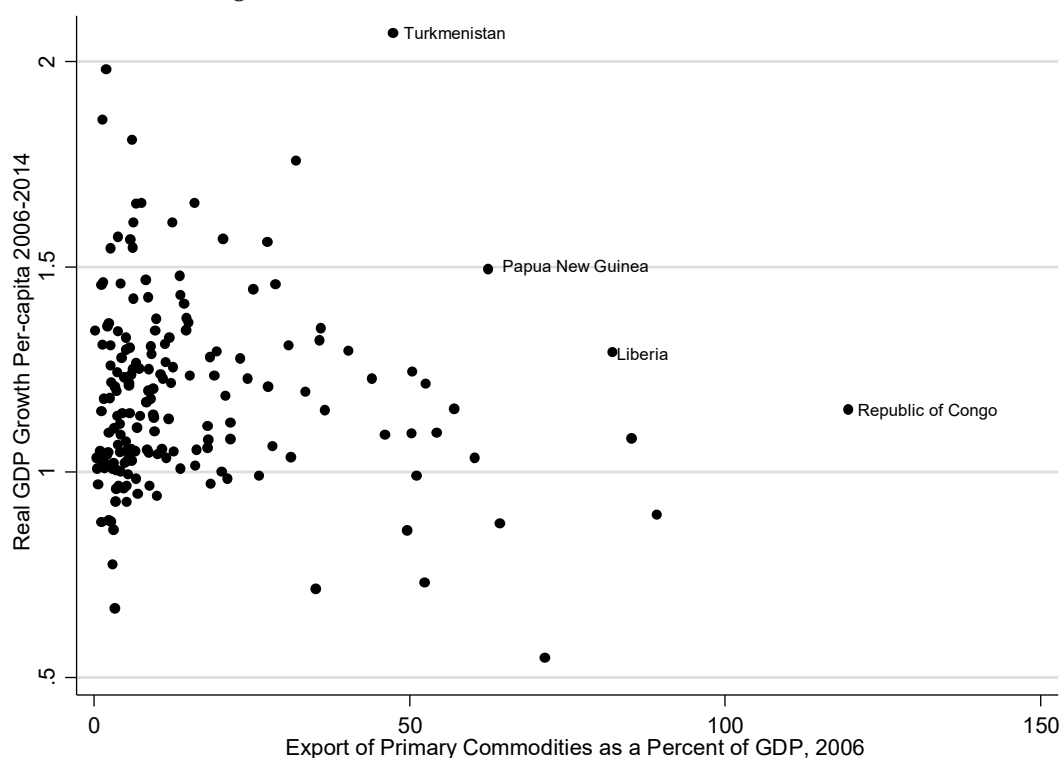
Country and Region	ExCh (average of 2007–2014)	Top export item among HS4digit-level items (2014)	Share in total exports to China (2014)	Other major export items
Solomon Islands	101%	Wood in the rough	100%	
Mongolia	78%	Copper ore and concentrates	52%	
Bahamas	57%	Recovered paper	85%	
Mauritania	55%	Iron ore and concentrates	80%	
Sudan	53%	Crude oil	89%	
Gambia	45%	Wood in the rough	88%	
Taiwan	44%	Electronic integrated circuits	19%	LCD Panels
Marshall Islands	42%	Frozen fish	100%	
Angola	41%	Crude oil	99%	
D.R of Congo	40%	Crude oil	28%	Copper, Cobalt
Philippines	36%	Electronic integrated circuits	29%	Nickel ore
Laos	34%	Wood in the rough	44%	Copper ore
Yemen	34%	Crude oil	66%	
Costa Rica	34%	Electronic integrated circuits	89%	
Oman	31%	Crude oil	95%	
South Korea	30%	Electronic integrated circuits	26%	
Myanmar	29%	Mounted precious or semi-precious stones	76%	
Australia	29%	Iron ore and concentrates	56%	
Sierra Leone	29%	Iron ore and concentrates	98%	
South Africa	28%	Commodities not elsewhere specified	60%	Iron ore

(Source) UNComtrade, Bureau of Foreign Trade (Taiwan)

The expansion of demand for primary commodities from China and the resultant concentration on exports of primary commodities in resource-rich countries has led to concerns about reactivating “the curse of natural resources,” which points out that resource-rich countries grew more slowly than resource-poor countries (Sachs and Warner 2001). Examining the impact of natural resource

imports by China, Su et al. (2016) found no evidence of resource exports to China having an adverse influence on exporting countries’ growth. However, as the scope of their analysis is limited to the period (1995-2007) when China had a smaller share of global imports (2.5-6.7%) than today, we cannot rule out the possibility that China’s imports are laying a curse on resource-

Figure 1. Growth and natural resource abundance 2006-2014



rich countries. Since it is unlikely that China's resource imports have effects different in nature from resource imports by other countries, the proper question to be asked is whether the curse of natural resources still exists. The scatter plot of a country's real GDP growth per capita from 2006 to 2014 and its abundance of natural resources (Figure 1), measured by the proportion of primary commodity exports (SITC0-4, excluding 266) to GDP, shows a weak negative relationship ($r = -0.07$), suggesting that the natural resource curse has yet to be overcome.

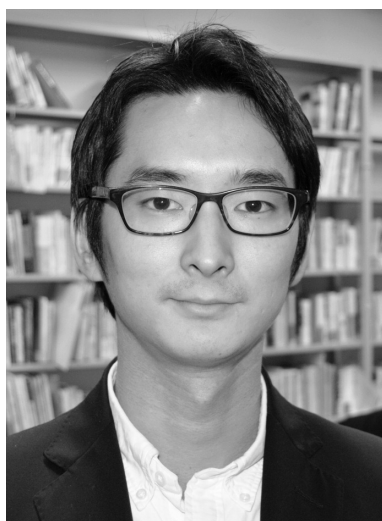
The impact of China's economic fluctuations on the rest of the world, in particular on resource exporting countries, is likely to become greater in the future as the Chinese economy expands. Someday, business journals may write that "when China sneezes, the world catches a cold."

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The Chinese Economy: Upgraded, Expanded, but Not Restructured?

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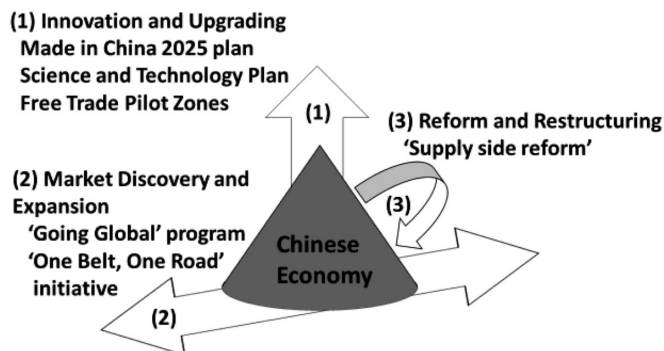
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1. Three Directions of Economic Reform in China

The recent downturn in the growth rate of the Chinese economy has come under the global spotlight. Factors seen as contributing to the downturn include evaporation of the demographic dividend, decline in investment efficiency, and stagnating demand. Against this backdrop, the Chinese government's announcement of a series of major economic reform proposals in 2015 merits attention. The proposals in question are the "Made in China 2025" program, the "One Belt One Road" initiative, and "Supply-side Reform." In this article, I provide an overview of these policies and assess their potential to achieve reform, based on findings from my own research.

As I understand it, there are three basic directions of economic reform currently being pursued by the Chinese government. These are summarized

Figure 1. Three Directions of Economic Reform in China



in Figure 1.

The first direction is innovation and upgrading, which primarily entails research and development by regional enterprises in China and the upgrading of industrial structures. Representative of this direction are the Made in China 2025 policy and the Medium- and Long-Term Plan for Development of Science and Technology. The former policy focuses on the stimulation of strategic emerging industries and the latter on the promotion of research and development in the corporate sector¹. In the past, the growth of the Chinese economy depended on a supply of affordable labor, but ongoing wage increases since the mid-2000s have made the generation of new growth drivers a major priority. The establishment of Free Trade Pilot Zones, headed by Shanghai, can also be seen as designed to lift productivity in developed regions by attracting more foreign capital and services.

The second direction of reform is market discovery and overseas expansion, mobilizing China's huge manufacturing capacity and foreign currency reserves. The "Going Global" policy to support overseas expansion by Chinese companies has been in train since the 2000s, but in 2015, the government committed to a new plan titled "One Belt

¹ A brief explanation on 'Made in China 2025' program by State Council is available at http://english.gov.cn/policies/latest_releases/2015/05/19/content_281475110703534.htm

One Road.”² This plan envisages the development of two routes: a “silk road economic belt” hinging on a transportation network running from China’s coastal regions through the countries of central Asia to Europe and a “21st-century maritime silk road” centered on a maritime shipping network also connecting with Europe. The countries in the regions covered by One Belt One Road are largely emerging economies, and the development plan thus consists primarily of the creation of an economic corridor between China and the emerging economies, together with the provision to those economies of infrastructure, industrial machinery exports, and funds through government-affiliated financial institutions.

The third direction is restructuring to address structural problems in the Chinese economy. Reforming the growth model from the investment-led pattern to the consumption-led pattern has been the top priority of the Chinese economy for more than a decade. Typical of this direction is the series of policies being advanced under the name of urbanization and “supply side reform.”³ Much of the attention paid to these policies has been focused on the elimination of overcapacity in sectors such as the iron and steel industry, but the policies also encompass such issues as further development of the private corporate sector and the promotion of mixed ownership models through the introduction of private capital into government-owned enterprises.

These three directions have all been advanced since the 2000s, but it is important to note that each one has only gradually been codified as policy. The reforms themselves are thus likely to be pursued over the period of another 10 years at least.

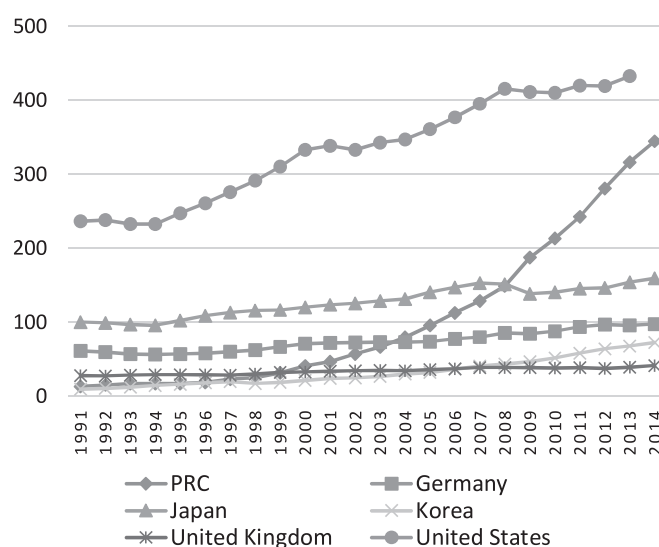
2. Feasibility of the Reforms

How much progress has been made on each of the three directions for reform of the Chinese economy? When considering this question, it is useful to turn our attention to basic data and examine the degree of progress on the implemen-

tation of policies in the past.

Firstly, will progress be made toward upgrading the business activities of Chinese companies? Figure 2 shows trends in overall research and development expenditure in selected countries. China spent 40 billion USD on R&D in 2000. By 2010 the figure was in excess of 200 billion, and reached 344 billion in 2014. In the same period, expenditure by the United States, the world’s largest spender on R&D, ranged between 300 and 400 billion. China is thus rapidly closing the gap and is predicted to spend more than the United States overall on R&D by 2020. The primary responsibility for R&D in China lies not with government-affiliated organizations but with private sector corporations. A case in point is Huawei Technologies, the subject of Dr. Xue Yiqun’s report in this special issue. The patent infringement suit filed by Huawei against Samsung Electronics underlines the emergence from China of a world-leading R&D-intensive communications device manufacturer.

Figure 2. Gross domestic R&D expenditure by selected countries (Billion USD)



Source: OECD (2016).

The role of the Chinese government’s innovation policy in promoting corporate R&D expenditure and patent acquisition cannot be ignored. Using

² “Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road” released by the National Development and Reform Commission, the Ministry of Foreign Affairs and the Ministry of Commerce on March 28, 2015 is available at http://en.ndrc.gov.cn/newsrelease/201503/t20150330_669367.html.

³ A brief explanation on the ‘Supply side reform’ by the State Council is available at http://english.gov.cn/news/top_news/2016/03/07/content_281475302961056.htm.

the company-level data furnished by Ito, Li, and Wang (2014), we conducted a study to ascertain the degree of increase in patent applications lodged by companies targeted by the innovation policy as opposed to those which do not benefit from it. The results show that on average targeted companies lodged around two more patent applications. Interestingly, we found that provincial government policies were more effective than those implemented by the central government. Leading Chinese companies will surely continue to acquire more advanced technology and produce more sophisticated goods and services. Put simply, the Chinese industries will be upgraded.

Secondly, will external economic expansion continue? Since the beginning of the 1990s, the Chinese economy has gradually opened its doors to the world by attracting foreign direct investment. Since the latter half of the 2000s, however, foreign investment by Chinese companies has also been increasing rapidly. Figure 3 shows levels of outward foreign direct investment (OFDI) stock in selected countries. The United States still retained its position as the world's number one direct investor, but Chinese OFDI has shown dramatic growth from 0.4 trillion USD in 2000 to 1.26 trillion in 2010, and 2.19 trillion in 2014.

In addition, China has huge foreign currency

reserves. The total assets owned by a country outside its own territory, or "net foreign assets," include not only direct investment but also foreign currency reserves and portfolio assets. While China has OFDI stock of two trillion USD, it also has foreign cash reserves of more than three trillion, the bulk of which is held in the form of United States government bonds.

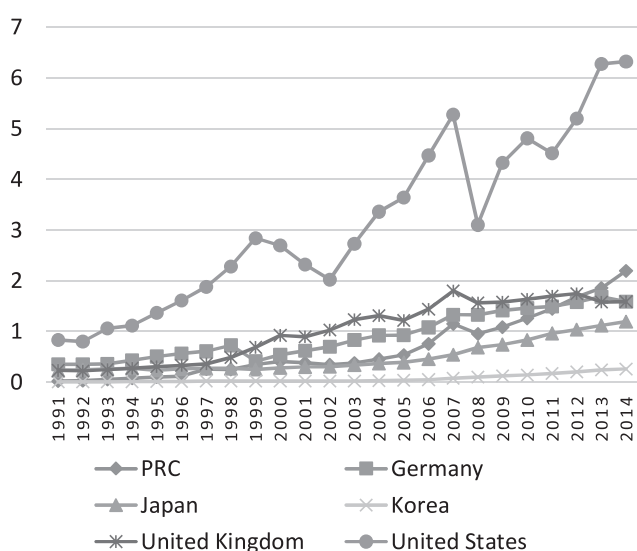
The One Belt One Road initiative is designed to accelerate investment outside China using foreign currency reserves. The rationale here is that if demand is insufficient, more demand should be generated. The scheme is likely to be financed with the support of the Asian Infrastructure Investment Bank (AIIB) and the Silk Road Fund. The Silk Road Fund, for example, is funded in the order of 26 billion USD, or 65% of its total value of 40 billion, by the Chinese State Administration of Foreign Exchange.⁴ Funds previously invested in United States government bonds will now be redirected to infrastructure investment especially in Asia.

Ito (2015) has studied China's program of construction of industrial complexes abroad, an initiative which is the antecedent of One Belt One Road. This study reveals that development funds for the construction projects are financed by the National Development Bank of China, while the actual development and management of the complexes is left to private corporations and local governments. It is interesting to note that, in the case of a Chinese industrial complex constructed in Indonesia, Japanese corporations have also established operations. In the same way, as the China-led One Belt One Road initiative takes shape, it is quite possible the infrastructure will be utilized by corporations based in third-party countries.

To summarize the above discussion: the foreign expansion of the Chinese economy is likely not only to continue but also to transform the economies of Asia, Eurasia, and in broader terms the world as a whole.

The third and final issue is how far the restructuring of the Chinese economy will go. The focus of

Figure 3. Outward FDI stock by selected countries (Trillion USD)

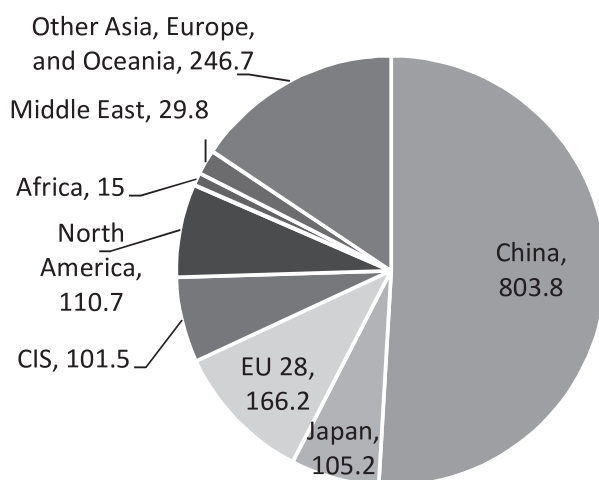


Source: UNCTAD STAT database.

⁴ See the website of The Silk Road Fund: <http://www.silkroadfund.com.cn/>

attention here is on whether or not overcapacity in the steel industry can be eliminated. As shown in Figure 4, around one half of world crude steel production in 2015 was concentrated in China, and some observers predict that China's crude steel production capacity may even reach one billion tonnes.

Figure 4. World Crude Steel Production Amount (Million Tonnes)



Source: World Steel Association (2016).

While the Chinese government has released a reform plan directed to lowering the capacity of ageing production facilities, the steel industry is still the mainstay of employment in some parts of the country. There are even reports of new expansions in total production capacity in some regions, Hebei province, the largest steel production base in China, for example. So restructuring will be not be an easy task. In regard to the regional distribution of production overcapacity in China, some studies report that the higher the rate of local employment by government-owned enterprises, the more likely overcapacity, demonstrating the difficulty of resolving the problem in conjunction with rationalization of government-owned enterprises in provincial areas.

However, there is also positive news. According to recent statistics, the annual growth rate of the second quarter was 6.7%. Among contributing factors, consumption was the largest factor, contributing 4.9% to quarterly growth. By looking at both positive and negative news, achieving the third reform direction, restructuring, is still far from a simple task.

3. The Chinese Economy: Upgraded, Expanded, but not Restructured?

In light of the three reform directions discussed, a provisional statement regarding the future of the Chinese economy may be: “upgraded, expanded, but not restructured.” What will this mean in practice?

Seen in retrospect, the last three decades have been an era of “reform and opening-up” for the Chinese economy. Reform and opening-up refers to the two major directions of shift, from a planned economy to a market economy, and from an underdeveloped economy to a developing economy. In this article, I have referred to the former as “restructuring” and the latter as “upgrading.” At the same time, China has also received huge volumes of foreign direct investment, opening up its domestic economy to the world.

In counterpoint to these developments, we can point firstly to the fact that restructuring of the economy, whether through further privatization or elimination of overcapacity, is increasingly difficult. Secondly, while the Chinese economy has continued to grow more sophisticated, it has also taken a new and important direction in the form of overseas expansion. Infrastructure development in emerging economies is crucial in order to alleviate production overcapacity within China. Overseas markets are also essential targets for provision of finance through China's massive foreign currency reserves and government-affiliated financial sector.

It is also possible that the three reform directions will each stimulate growth in different industrial sectors within the Chinese economy. Sectors such as bio-medicine, machine tools, and aircraft will be the primary beneficiaries of upgrading policies, while expansion policies will clearly benefit major corporations in infrastructure, construction, and facilities. It appears that the Chinese government is no longer interested in the labor-intensive industries that have long given China its competitive advantage. It is also possible, however, that these Chinese-led labor-intensive industries will themselves be upgraded and expanded.

This article's delineation of three policy directions and portrait of an “upgraded, expanded, but not

restructured" Chinese economy is a largely hypothetical outlook. Whether or not the three directions envisaged by the Chinese government actually match the changes underway in the Chinese economy is an issue warranting further investigation.

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How Did China's Telecom Equipment Makers Take the Lead? : The Role of the State and Private Firms in the Industry's Rise to Global

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In March 2016, the national legislature of China, the National People's Congress, adopted the 13th Five-Year Plan for achieving economic and social policy goals. As China's economy has been decelerating, priority was given to implementing more "supply-side structural reforms." Compared to the 12th Five-Year Plan, the new plan includes many more innovative projects such as "Internet Plus," which aims to integrate cloud computing and other recent IT developments into more sectors of the economy, and building "modern information network architecture." The Internet Plus strategy will expand the use of internet applications in sectors such as finance, distribution, and e-commerce and thereby dramatically change the daily lives of citizens. Moreover, it is also highly anticipated that this centerpiece policy will integrate the internet economy with traditional industries.

Instead of focusing on the Internet Plus initiative, this article examines the history of the telecom industry that created China's IT infrastructure, especially the actions of the telecommunications

equipment makers that led the development of the industry. After surveying their progress, I discuss the role of the government and industry in the sector's development.

1. "Seven Nations, Eight Systems": Chaos in Telecommunications in the 1980s

When I was in elementary school, in the early 1990s, not many of my classmates had landline telephones. Despite the high cost of getting a landline, telecom manufacturers could not keep up with demand. Would-be customers experienced very long delays before their phones were installed.

Why did this gap between demand and supply persist? To answer this question we need to go further back in history to the early years of the People's Republic of China. When the PRC was established, telecommunication equipment was under the jurisdiction of two different ministries: the Ministry of Posts and Telecommunications and the First Ministry of Machine Building. With support from the Soviet Union, China began to manufacture switches, cables, and telephones domestically. It then succeeded in building a communications network starting in cities and then reaching out to rural areas.

From 1966 to 1976, this progress was interrupted by the upheavals of the Cultural Revolution. Afterward, the government that launched the policy of "Reform and Opening-up" tackled the problem of China's outdated technology. The government made modernizing the communications network its highest priority. The latest technology and equipment was imported from abroad and the outworn transmission system was replaced. The general policy underlying these concrete improvements was known as "market conforming technology exchange."

To speed up the replacement of crossbar switches with digital ones, China imported equipment from multiple telecom firms—NEC and Fujitsu

(Japan), AT&T (United States), Ericsson (Sweden), Siemens (Germany), BTM (Belgium), and Alcatel (France). Despite the number of competitors, the cost of equipment was steep. Digital switches for a central telephone office, for example, cost as much as 300-500 USD per port in the late 1980s. The foreign firms that were leading suppliers of network equipment profited handsomely.

2. Encircle the Cities from the Countryside:

Chinese Firms in the 1990s

As the modernization of China's telecom infrastructure progressed, the government moved to reduce its dependence on telecom imports and improve the country's trade balance by requiring foreign firms to create joint ventures with state-owned enterprises (SOEs) and transfer technology. As intended, these policies gave impetus to domestic manufacturing of communications equipment.

Another priority in the 1990s was reducing the "seven nations, eight systems" effect of relying on mutually incompatible equipment purchased from multiple foreign suppliers. To facilitate trans-regional standardization, a limit was placed on the number of foreign firms involved in manufacturing switches. This limit was also meant to encourage inter-firm competition in price and quality and to make it more difficult for foreign firms to collude.

Domestic telecom equipment became more competitive and gained market share from products manufactured by foreign firms and joint venture firms due to the successful development of low-cost domestic switches. With joint investment by the precursor to today's People's Liberation Army's Information Engineering University in Zhengzhou, Henan province and the China Posts and Telecommunications Industry, Julong (Great Dragon Group) began manufacturing the HJD-04 central office switch in 1991. Sales of the switch boomed, achieving a 10% market share by 1994.

Domestic telecom equipment manufacturers used low prices to appeal to sectors of the market that foreign firms tended to overlook and aggressively marketed their products in rural regions. Applying Mao's military stratagem of "using the countryside to encircle the cities" to their business

plans, domestic manufacturers put themselves on a sound footing by meeting the needs of the vast rural market.

The success of this rural-first strategy enabled Julong, Datang, ZTE, and Huawei to weather the intense market competition of the 1990s. These firms attracted a great deal of attention and were lauded as representatives of China's growing strength in telecom equipment manufacturing.

3. Two Firms Wither, Two Firms Thrive: New Challenges in the 2000s

Government planning made it possible for domestic firms to rival foreign and joint-venture manufacturers. However, in the 2000s a split emerged between the SOEs, Julong and Datang, and privately owned ZTE and Huawei. The private firms continued to enjoy rapid growth while the SOEs struggled. What led to this outcome so different from government planners' expectations?

Julong was not built from the ground up. Instead, the government merged eight existing SOEs into one. It also invested a massive amount of money into the new firm, but that was not enough to overcome Julong's internal lack of cohesion that impeded effective coordination between the R&D and marketing departments. Instead of an integrated firm, Julong remained a house divided despite multiple reorganizations. It failed to develop a successor to the HJD-04 and therefore entered into a sales death spiral.

The China Academy of Telecommunications Research established Datang Telecom as an SOE in 1999. Cellular technology evolved rapidly in the 1990s, and Datang was involved in the development of China's 3G (3rd generation of mobile communications technology) standard, TD-SCDMA. In May 2000, the International Telecommunication Union certified TD-SCDMA as a global 3G standard along with the European W-CDMA and the American CDMA2000.

With the government's encouragement, Huawei, ZTE, Chengdu Putian, and other leading Chinese telecommunication equipment manufacturers formed the TD-SCDMA Industry Alliance to speed up the 3G technology's transition from

drawing board to marketplace. Despite this attempt at coordination, the roll-out of TD-SCDMA fell far behind schedule. Finally, in 2009, China Mobile, one of China's major mobile service providers, launched a TD-SCDMA network. Unfortunately for China Mobile, TD-SCDMA was not yet mature, which made it difficult for the company to compete for subscribers against rival firms that licensed W-CDMA or CDMA2000 3G standards, such as China Unicom and China Telecom.

In a few years China Telecom made it clear that it was moving away from TD-SCDMA. Once the next generation TD-LTE network technology was developed, China Telecom accelerated its construction of 4G base stations. According to data from the Ministry of Industry and Information Technology, the number of 4G service subscribers in China exceeded 386 million by the end of 2015, of which 312 million were China Telecom subscribers.¹

As the first globally recognized telecom standard developed in China, the TD-SCDMA was unquestionably a major achievement in the history of China's telecom industry. However, the standard was not adopted globally, nor can it be regarded as a success domestically. There is no denying that the TD-SCDMA fell short of the government's expectations.

ZTE and Huawei, both based in Shenzhen in southern China, took a completely different approach. Founded in 1985, ZTE was originally in the aerospace sector. In 1997, ZTE made an initial public offering of shares on the Shenzhen Stock Exchange. The central government owns the majority of ZTE's shares but has primarily taken a hands-off approach to the running of the firm, an arrangement known as "state owned, privately managed." Huawei was founded by entrepreneur Ren Zhengfei in 1988 and is a wholly private firm.

Both companies began by developing their own telephone switches and following the aforementioned "rural-first" sales strategy to increase market share and then expand into urban markets. In addition to mobile phones and internet diffusion, ZTE and Huawei expanded into mobile communications, data communications, internet telecommunications equipment, and smart phone terminals. Next, these companies turned their attention to overseas markets at a relatively early date. Their marketing strategy abroad was similar to their domestic approach in that they first targeted developing nations in Africa and Southeast Asia before Europe.

Huawei broke into the European market in 2007 when British Telecom began buying its equipment. Huawei was able to expand into other advanced economies, with the exception of the United States, and, in 2012, Huawei had overtaken Sweden's Ericsson to become the largest manufacturer of telecom equipment in the world.² Huawei sales in 2015 reached 395 billion RMB (60.8 billion USD); its net income was 36.9 billion RMB (5.7 billion USD). Overseas markets accounted for roughly 58% of Huawei's sales.³

In contrast, ZTE's sales revenue in 2015 was 100.19 billion RMB (15.4 billion USD), the first time revenue exceeded 100 billion yuan. Net income was 3.2 billion RMB (500 million USD) and 47% of sales were overseas.⁴

Thirty years ago, Huawei was a small company on a Shenzhen street corner. How was it able to grow so spectacularly? What lay behind Huawei's "counterattack"? The leadership and charisma of Huawei's founder, Ren Zhengfei, the "wolf culture" he touted, and Huawei's market strategies had a great deal of influence, but the primary reason that the firm was able to survive and succeed in the intensely competitive field of telecommunications equipment manufacturing was its innovativeness.⁵

¹ "TD-SCDMA投資問題没那么严重" ("The TD-SCDMA investment issue is not so serious"), 財新網 (Caixin). March 21, 2016. <http://economy.caixin.com/2016-03-21/100922692.html>

² "Who's afraid of Huawei?" *The Economist*, August 3, 2012.

³ Huawei Annual Report, 2015.

⁴ ZTE Annual Report, 2015.

⁵ Ren Zhengfei emphasized that, to take full advantage of a developing market, people must learn from the behavior of wolves and emulate them in three ways: develop a keen sense of smell, be undaunted by setbacks, and attack with your pack.

Table 1. Top PCT Applicants(by Business Sector)

Applicants	Country of Origin	2007 Applications (Position)	2008 Applications (Position)	2009 Applications (Position)	2010 Applications (Position)	2011 Applications (Position)	2012 Applications (Position)	2013 Applications (Position)	2014 Applications (Position)	2015 Applications (Position)
Huawei	China	1365 (4)	1737 (1)	1847 (2)	1528 (4)	1831 (3)	1801 (4)	2110 (3)	3442 (1)	3898 (1)
ZTE	China	—	329 (16)	517 (22)	1868 (2)	2826 (1)	3906 (1)	2309 (2)	2179 (3)	2155 (3)
Panasonic	Japan	2100 (1)	1729 (2)	1891 (1)	2154 (1)	2463 (2)	2951 (2)	2839 (1)	1682 (4)	1185 (16)
Qualcomm	United States	974 (7)	907 (11)	1280 (5)	1677 (3)	1494 (6)	1305 (7)	2050 (4)	2409 (2)	2442 (2)
Siemens	Germany	1644 (3)	1089 (6)	932 (11)	833 (12)	1039 (12)	1272 (8)	1348 (11)	1399 (9)	1292 (11)
Nokia	Finland	822 (10)	1005 (7)	663 (15)	632 (15)	698 (16)	670 (18)	806 (21)	630 (30)	—
Philips	Netherlands	2041 (2)	1551 (3)	1295 (4)	1435 (5)	1148 (9)	1230 (9)	1423 (10)	1391 (10)	1378 (9)

Source : PCT Yearly Review 2008–2016, World Intellectual Property Organization.

Since the early 1990s, Huawei has invested more than 10% of its revenue into research and development (ZTE has also invested considerably in R&D.). Huawei holds more patents in China than any other firm. As shown in Table 1, Huawei and ZTE have been China's standard bearers for intellectual property rights, ranking among the top ten companies for the number of patent applications submitted under the Patent Cooperation Treaty (PCT) since the late 2000s. The two firms have been engaged in a fierce R&D competition with Panasonic to be among the top five patent filers. Of course, filing a patent request is not the same as being granted a patent. Nevertheless, we can see the rise in disputes over patent infringements in global markets as evidence of greater recognition of the importance of technology development and more awareness of intellectual property rights.

Having summarized the history of China's telecom industry, the last step is to assess what role the government played in its dramatic successes and missteps. To begin with, China's government played a crucial role in the rapid advances made by its telecommunications industry. Within the span of thirty years, China transformed its information infrastructure from scarcely functioning to providing telecom service to the most landlines, mobile phones, and internet users in the world, an unprecedented accomplishment. In the 1980s, China began importing the latest foreign technology. Next, it brokered ties between foreign firms and SOEs and then followed with the use of technology transfers to support domestic firms. Through this process, the government took the initiative and was deeply involved in every step from setting policy to encouraging competition.

However, government intervention is a double-edged sword. Whether it leads to success or failure depends greatly on how deeply the government gets involved. TD-SCDMA is the perfect example of the risks of too much state involvement. The government was involved in decisions at every stage from standard setting to product launch. Despite a massive investment of government funds, the market responded coolly to TD-SCDMA and the project ended in failure.

Next, private firms that have triumphed over world-class foreign-affiliated and state-owned firms have unlimited potential. China's government has spent lavishly on SOEs, and while private firms like Huawei scraped and struggled to raise funds from the day they were founded, they have also invested unstintingly in R&D to develop new technology.

As a result, technology and know-how developed in China was exported to emerging and advanced economies, and these firms became preeminent in telecommunication equipment manufacturing. As Huawei's history shows, firms that weathered the opening of China's telecom equipment market and became stronger through competing against a number of rivals were then equipped to compete internationally. Although this essay has focused exclusively on the telecommunications sector and not addressed China's overall economy, it is my hope that the lessons from this sector on the importance of private entrepreneurship and the risks of government involvement will be widely recognized and that, in ten or twenty years, many more private companies like Huawei will emerge.

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Overview of the High-Tech Industry Development in China

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Innovation is the driving force behind continuous economy growth, and the high-tech industry is the core engine behind innovations. For this reason, countries all over the world place huge importance on high-tech industry development. The high-tech industry in China has experienced outstanding advancements as the Chinese government releases new plans every five years to boost its growth. According to National Economic and Social Development Statistical Bulletin (2014, 2015) issued by the National Bureau of Statistics of China, the total industrial added value in 2014 was 22.8 trillion RMB, a 7% increase from 2013, while the high-tech manufacturing industry's added value was a 12.3% increase from 2013. The total industrial added value in 2015 was 22.9 trillion RMB, a 5.9% increase from 2014 while the high-tech manufacturing industrial added value was a 10.2% increase from 2014. Though high-tech industry in China grew rapidly, there were deep structural problems during its development.

As China enters the transition period to the “new normal” economy, only by conducting an objective diagnosis of the current high-tech industry development, the innovation engine can be boosted. Based on the definition in “High-tech Industry (Manufacturing) Category” (2013), released by National Bureau of Statistics of China, the scope of analysis in this article includes the following five industries: the aerospace and aircraft industry, the electronics and communications equipment industry, the computer and office equipment industry, the pharmaceutical industry, and the medical equipment and instruments industry.

1. Overview of Five High-tech Industries

The development of China's five high-tech industries is extremely unbalanced. Table 1 illustrates the key input and output figures of China's high-tech industry in 2014. The electronics and communications equipment industry dominates the landscape as it is the largest industry in terms of input and output and is responsible for around 60% of every indicator for the overall high-tech industry. The other three industries each have their strengths. In export earnings, the computer and office equipment industry brought in 433.37 billion RMB in 2014, topped only by the electronics and communications equipment manufacturing industry. The pharmaceutical industry's research and new products development expenditures are higher than that of the computer and office equipment industry, which resulted in the second largest output of invention patents in 2014 with 12,620 invention patents; however, the new product sales income and export earnings are far behind that of the computer and office equipment industry. China's aerospace and aircraft industry export and new product sales income are relatively low due to the inelastic market demand and the strict international import/export regulations.

2. Regional Structure

The regional structure of China's high-tech industry development and the general structure of regional economy created during the 30 years of

Table 1. Illustration of related statistics of China's high-tech industry groups in 2014

Industry	R&D expenditure (100 million RMB)	New product development expenditure (100 million RMB)	New product sales income (100 million RMB)	Invention patents (Q'ty)	Export (100 million RMB)
Pharmaceutical Industry	438.6	407.9	4,301.8	12,620	319.4
Aerospace and Aircraft Industry	216.3	202.6	1,118.5	3,092	92
Electronics and Communication Equipment Industry	1,378.1	1,685.3	22,322	53,505	9,839.9
Computer and Office Equipment Industry	165.1	205.5	5,715.9	2,785	4,333.7
Medical Equipment and Instrument Industry	218.1	265.3	2,035.8	947	263.4

Source: China Statistics Yearbook on High-technology Industry 2015

Table 2. Related statistics of China's high-tech industry by region in 2014

Region	R&D expenditure (100 million RMB)	New product development expenditure (100 million RMB)	New product sales income (100 million RMB)	Invention patents (Q'ty)	Export (100 million RMB)
National	2,416.2	2,766.6	35,494.2	87,620	14,848.5
Eastern Region	1,879.3	2,181.4	28,015.8	71,320	11,936.7
Central Region	244.4	262	4,831.5	7,500	2,481.4
Western Region	200	237.2	2,078.8	6,519	398.6
Northeastern Region	92.5	86	56.8	2,281	31.8

Source: China Statistics Yearbook on High-technology Industry 2015

economic reform are basically the same. Table 2 shows the high-tech industry's development in the four major regions of China in 2014. All indicators show that the eastern region has an overwhelming advantage, occupying around 80% of the nation's quantity, while the central region is about 10%, and the western and northeastern regions share the remaining 10%. Overall, China's high-tech industry development is extremely unbalanced with an apparent gradient.

3. Low R&D Intensity

The ratio of high-tech industry R&D expenditure to main business income is an indicator of R&D intensity. In 2014, the R&D intensity of the overall high-tech industry in China was 1.9%. The aerospace and aircraft industry led with 7.14%, while the medical equipment and instrument industry was 2.2%. The electronics and communication equipment industry was 2.04%. The pharmaceutical industry was 1.88%, and the computer and office equipment industry was a mere 0.7%

(China Statistics Yearbook 2015). According to the international standards, the proportion of R&D expenditure in sales revenue for high-tech industries is over 3%, 1–3% for medium tech industries, and under 1% for low tech industries (Sun et al. 2008). Clearly, all of the high-tech industry groups in China, other than aerospace and aircraft, are below international standards, lacking in R&D intensity. The gap between China's high-tech industry's R&D intensity and that of developed countries is quite large; the ratio of R&D expenditure to sales income is 12.21% for Japan's pharmaceutical industry and 6.26% for the information and communication equipment industry (MIC 2015). Furthermore, the main driving force of high-tech industry growth is technological innovation. The contribution of technological advancements to high-tech industry production growth was 46.37% between 1995 and 2000, while it was 2.3% for China (Zhang and Gao 2013), which shows the tremendous need for China's high-tech industry to raise its level of technology.

4. Low Innovation Efficiency

The innovation efficiency of a high-tech industry is the collective demonstration of a nation's innovation competitiveness. In 2013, China's high-tech industry's main business income was 897,000 RMB per person, while the manufacturing industry's was 1,056,000 RMB per capita, indicating the high-tech industry's labor productivity is lower than that of the manufacturing industry. Therefore, while the speed of growth is faster for China's high-tech industry in recent years, its labor productivity remains low. Several scholars, such as Guan and Chen (2009), Han (2010), Li et al. (2011), and Xiao et al. (2012), measured the innovation efficiency of China's high-tech industry. They claim it is still rather low.

Industrial countries, particularly developed countries such as the United States, Japan, Germany, and France are at the top of the global industry chain and value chain and are mainly involved in the research, design, marketing and sales, and production of highly integrated components, which rarely requires importing of intermediary inputs from other countries. China, on the other hand, relies heavily on imported intermediary inputs from developed countries and processes and assembles products from these inputs according to the instructions from the firms in developed countries before exporting them. According to the research on the Zhejiang Pinghu Opto-mechatronics Industry cluster by Huang et al. (2009), about 79% of the companies are involved in the assembly and testing of final products, a third of the companies are involved in general component manufacturing, and only 5% of the companies are involved in core component manufacturing. Even though the ratio of "ordinary trade" in China's high-tech industry exports has increased over the past 10 years, the ratio of "processing and assembly" in high-tech exports remains high, which was 65.3% of all exports in 2013. The electronic information manufacturing industry is an important part of our nation's high-tech industry; the import of its products in 2015 totaled 527.7 billion USD, 31.4% of total imports. However, although China occupies a large portion of global exports, overall, the level of technology introduced by foreign capital is not high, and the actual trade benefits and its influence on the domestic economy are quite limited (Cheng et al. 2010, Huang et al. 2009).

Therefore, despite the fact that the development speed and scale of China's high-tech industry have both impressed the world, it still needs further reform. We propose the following policy suggestions. First is to increase the governmental funding for R&D and increase innovation efficiency. Governmental R&D funding has a significant positive influence on the high-tech industry's technology efficiency: it supplements the lack of firms' internal funds, lower investment and production risks, and encourages the high-tech industry to invest for expansion (Hussinger 2008). At the same time, government funding not only lowers the uncertainty of investment but also serves as an effective way to utilize current resources. It also promotes self- or external R&D involvement, improving product structure while raising the bar of the overall high-tech industry's R&D innovation capabilities and accelerating the optimization of the industry's structure (Fan and Chen 2014). Thus, we must continue to increase investment in core technologies and reduce our dependence on developed countries and multinational corporations. Second is to develop venture capital and broaden financing channels. High-tech industry innovations involve high risks and large investments, which means they require a large and diverse source of funding. Currently, high-tech ventures in China are often refused at the door by traditional banking institutions and venture capitals, which forces them to rely excessively on internal funds, impeding corporate expansions and technological renovations (Deloitte 2015). Impediments in obtaining financing and high financial costs are important factors that suppress the innovative power of high-tech corporations. Thus, developing venture capital, expanding sources of funding, and introducing diverse investors to the industry are important preconditions that will lead to the acceleration of innovation at high-tech corporations. Third is to raise governmental service awareness and improve the policy system for innovation. Under the "new normal economy," the Chinese government's policy direction should be towards the streamlining of the administration and institutional decentralization to boost the economy and let the market assume a decisive role in determining the development and growth of corporations. Meanwhile, the policy system must be strengthened with legal frameworks that encourage innovations and eliminate any "innovation anxiety" from the market.

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How to Break through the Predicament of China's Open Economy in the New Stage

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In recent years, the development of China's open economy has begun to show signs of fatigue. For example, foreign trade development, an important part of an open economy, seems to have hit rock bottom. For the years 2012 to 2015, the foreign trade growth targets in China were projected to be 10%, 8%, 7.5% and 6%, respectively, while actual growth was only 6.2%, 7.6%, 3.4% and -7%. It has already been four consecutive years without meeting a set growth target, and a huge drop from the prior 20 or so years of double-digit rapid growth. In 2015 in particular, not only did China's foreign trade development miss its target, it was the first year with negative growth since 2009. Under pressure from multiple factors that have strained development, such as foreign demand remaining low, China's open economic development is facing an urgent need to expand production into mid- and high-end goods. The speed and quality of this open economic development are not mutually exclusive; to develop an open economy of a higher level will raise competitive-

ness and accelerate the speed of development. However, China's open economic development is slowing down, which demonstrates that the new competitive advantages have, at present, not compensated for the loss of traditional advantages. Thus, the most pressing task at hand is to find a new driving force for growth.

1. The Reality that China's Open Economy Faces

First, let us view matters from the point of view of continuous low economic growth in the global economy. The golden age of global economic growth starting in the mid-1980s was abruptly terminated by the sudden arrival of the global financial crisis in 2008. In the face of this crisis, the world's leading nations embraced Keynesian macroeconomic stimulus policies in the hopes of rapidly boosting their economies and pulling the world out of the economic shadows as soon as possible. Although economic stimulus policies gained certain results, they did not achieve the intended recovery in economic and trade growth. The world has entered a transitional phase with characteristics such as a slowdown in economic growth, continuously high unemployment rates, and slow growth in foreign trade.

Second, let us view matters from the point of view of the rise of protectionism in international trade. At critical periods of economic slowdowns, voices of trade protectionism continuously appear, and corresponding policies arise after them. Since the 2008 financial crisis, international trade has fallen into a period of uncertain growth. This unforeseeable instability is interpreted by some as the return of trade protectionism. This type of international economic protectionism is not only protection by import countries' governments of traditional industries, but also protection of new industries. It is not only protection for manufacturing industries, but also for service industries, science and technology. It is not only protection for industries and products, but also for finance and investments. Currently, international economic protectionism is

even more severe than the trade protectionism of the past¹.

Third, the structural adjustments in international industrial structure are currently facing an important shift: as the global manufacturing industry continues to move towards China, it has also begun moving towards other developing economies such as Vietnam, India, and the Philippines. Moreover, manufacturers that have already erected their plants in China or Chinese domestic manufacturers also have the possibility to move towards developing economies, especially towards countries with potential demographic windows of opportunity. This trend is not only related to transnational companies' strategy to develop new markets and diversify investment risks, but also to their efforts to optimize global distribution of resources and to lower costs. In light of this situation, as a nation deeply involved in the global division of labor, China obviously faces huge pressure from competition for low cost.

Fourth, the experience of international economic development shows that every major economic crisis is accompanied by a subsequent wave of new industrial development. After this round of global financial crisis, nations worldwide have started to focus on technology-intensive new industries in an attempt to take over a vantage point in this new round of global economic development. Whether it be the United States' "Advanced Manufacturing Industry" strategy to attract and upgrade the manufacturing industry, Germany's "Industry 4.0," United Kingdom's "High-value Manufacturing," or France's "New Industrial France," they are all essentially in a competition for technological and industrial revolution. Countries' competition in new industrial fields to take over a vantage point for global economic growth and lead the new round of the global economy will cause Chinese industries' attempts to move towards mid- to high-end products to be faced with intense competition.

Fifth, let us view matters from the viewpoint of rising factor prices for all types of production. In

recent years, the rise of factor costs has been a challenge for the traditional low cost advantage. Data from the National Bureau of Statistics of China show that for China's urban residents, disposable income per capita and average salary for urban units have both seen increases by wide margins. The disposable income per capita for the country's urban residents was 31,195 RMB in 2015, an 8.2% growth from the year prior. A total of 27 provinces have raised their minimum wage standards and have seen an average growth of 14.9%. This indicates, as the demographic dividend dwindles in recent years, the growing problems of labor shortage and recruitment difficulties that China's open economic development is facing. China's open economic development will face the challenges of the acceleration in the rise of labor costs and the continuous rise of land and environmental usage costs.

2. Main Obstacles for China's Open Economic Development

The main obstacles for Chinese open economy's transition and development can be summarized as follows. First, the ability to create indigenous innovations needs to be strengthened. Certain indices show China's effort in the improvement of innovation ability, such as China's 2015 R&D expenditure intensity (the ratio of R&D expenditure to GDP), which was 2.05%, a 0.04% increase from the previous year. However, the improvement of innovation ability is a process of dynamic development and accumulation. There is a gap between the creation of research results and their transformation into actual products, and it will be difficult to narrow this gap within a year or two. Thus, China's current technology is still lacking in originality and highly dependent on foreign technologies. Key industries and core technologies for key products, such as aerospace manufacturing, pharmaceuticals, integrated circuits, advanced materials, and so on, remain in the grasp of developed countries' transnational companies. China's open economic development is still at the position of relatively low value-added section in the global value chain.

Second, Chinese firms have yet to become the

¹ Tong Jiadong. "Strategies against International Economic Protectionism." *Guang Ming Daily*. 2014-03-03011.

main drivers of innovation. The capacity to make indigenous innovations ought to be created in firms. Although China has made several huge advancements in creating a market economy system, the market mechanism is yet to exercise a decisive role in resource allocation; the government is still relatively heavily involved in the market. Government subsidies to develop strategic new industries have not only failed to achieve substantial results in the innovation of core technologies, but they also have created overcapacity in low-end industries such as steel, coal, plate glass, and photovoltaics. Chinese firms are yet to display their economic vitality.

Third, institutional obstacles impeding the drive for innovation must be removed as soon as possible. If we only view the inputs to scientific and technological innovation, R&D expenditures in recent years have grown rapidly. In 2014, 1.3 trillion RMB were invested into R&D, which was 116.9 billion RMB more than the previous year, growing by 9.9%; the R&D expenditure per full-time research and development personnel was 351,000 RMB, which was 16,000 RMB more than the previous year. However, a large portion of the research results are not transformed into applicable technologies. Low utilization efficiency and misallocation of technology resources and constraints to innovation such as monopolies and market segmentation phenomena still exist. There is still no protection for intellectual property rights in innovative activities. Regulations on the entry of new technology, new products, and new business model are lacking. In industrial technology policies and regulatory systems, the government prefers ex ante inspection and approval to ex post monitoring, but the latter will be friendlier to upgrading and innovation. This series of obstacles is no doubt another challenge to be overcome for China's economic development to be driven by innovation.

3. Specific Initiatives for China's Open Economic Development

Specific, practical initiatives must be taken in order to further promote open economic development and develop new competitiveness. For this purpose, the following measures should be followed.

First, accelerate technological innovations and complete the transition from factor-driven to innovation-driven development. Establish a shared channel for international exchanges of knowledge, technology, information, and so on, and learn the new rules of the global economy.

Second, accelerate the transition from dependency on demographic dividends to the development of talents. China's economic development was previously dependent on the demographic dividend, whereas the new phase of development should rely on talents. Compared to normal, average labor, high-level and professional talents can move easily across national borders. Thus, not only is the development of high-level talent with international awareness, knowledge, and vision required, the ability to attract quality global production factors and global knowledge and talents from around the world is necessary as well.

Third, it is necessary to enhance current advantages and create a comprehensive competitive advantage in cost. The advantage of an open economy should not only be determined by the costs of basic productive factors such as general labor power, but by comprehensive costs. For instance, in the past decade or more, the United States' largest direct foreign investment destination has not been China, but rather Europe, which has relatively higher labor costs and lower comprehensive costs. The next step is to create a comprehensive cost advantage, which reflects the quality of market mechanisms, system, the industry support environment, government efficiency, taxes, basic infrastructure, the level of rule of law, and so forth.

Chinese Consumers' Explosion of Buying in Japan: A Puzzle

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Introduction

The term *bakugai* was awarded Japan's "Best Buzzword of 2015" prize. Literally "explosive buying," the word describes the frenzied spending craze of Chinese tourists who come to Japan to make large purchases in a relatively short period of time. There are three features that characterize the *bakugai* shopping behavior of Chinese people in Japan. First is the sudden surge of tourists in Japan. In 2014, 2.4 million Chinese tourists visited Japan, a growth of 83.3%; in 2015, the number grew to 5.0 million, resulting in a growth rate of 107.3%. In comparison with January to March of the previous year, the month-on-month growth rates in 2016 were 110%, 38.9%, and 47.3%, respectively (JNTO 2016a, 2016b). Second, purchasing consumption is Chinese tourists' highest expense, far more than tourists from any other country. The per-capita expenditure of Chinese tourists in Japan was 197,800 yen in 2014 and 283,800 yen in 2015. Total expenditures by foreign tourists in Japan were 3.48 trillion yen in 2015, of

which 1.43 trillion yen (40.8%) was spent by Chinese tourists. Third, the products Chinese tourists purchased have a diverse profile. They include luxury items (e.g. watches, handbags and purses, jewelry, cosmetics), toilet seats with washing functions, electric toothbrushes, thermos bottles, daily items (e.g. all kinds of medicine, clothes), and cleverly designed products (e.g. nail clippers, brushes, peelers). In particular, products produced domestically in Japan have become hot *bakugai* targets for Chinese tourists.

As we review the characteristics of *bakugai*, we should, at the same time, ask why it has occurred, how it should be regarded, and how China should face *bakugai* behavior.

Rational Choice and the Thriving Middle Class

The *bakugai* behavior of Chinese tourists in Japan is not one of irrational copycatting or conformity, but the rational economic choice of the individual to maximize personal utility in the market. The unwillingness of Chinese tourists to consume domestically and their preference to engage in *bakugai* in Japan or to go through complicated channels to order from abroad is rooted in three issues. First is the issue of sales pricing: similar products are less expensive in Japan than in China, as much as by 20% or more, and some products are even half the price. The huge difference in prices inevitably leads to widespread arbitrage behavior. Second is the issue of product creativity: products that are more innovative or more technologically sophisticated are available in Japan. Many Japanese products are more user-friendly and creatively designed, which coincidentally satisfies the ever-increasing needs of new consumer groups in China. For instance, electric rice cookers, one of the targets of *bakugai* behavior, incorporate inner tank material and multi-level pressure heating. Third is the issue of quality and the consumption environment. The Japanese market is more mature; production standards, market entry thresholds, and the costs of legal infringement are higher; counterfeit or substan-

dard quality issues are less frequent; companies are concerned with their integrity and reputation; and service is concerned with detail and the customer's viewpoint. All these factors tend to create good consumer experiences. These traits of the Japanese consumer market are closely related to the consumer psychology, the historical culture, and the social system (Miura 2013). Therefore, the *bakugai* behavior of Chinese consumers in Japan is a "profit-seeking" one and a rational expression of their dissatisfaction in China's domestic product prices, innovation, creativity, quality, and consumer environment.

Bakugai in Japan is also closely related to the surge of China's middle-class consuming power. According to Credit Suisse's "Global Wealth Report 2015", China's total household wealth is second in the world at 22.8 trillion dollars, more than Japan but behind the United States, and its middle-class population is the largest in the world at 109 million, surpassing the United States. The consumer needs of China's middle class reflect a rational consumption structure rooted in practical needs, of which the need for consuming standards, consuming capability, and consuming quality is continuously rising (Barton et al. 2013). This puts a higher demand on the market's supply, and China's current product structure cannot satisfy this diverse and ever-growing need. Thus, China's middle class has chosen to vote with their feet and currency and to extend and declare their consumer rights on the market. Furthermore, the drawing effect of the Japanese government's policies, such as the tourism-based country strategy, visas, duty-free, are significant external forces in facilitating Chinese consumers' *bakugai* in Japan.

Opportunities and Challenges in Sino-Japanese Economics

The Chinese consumer's *bakugai* behavior has no doubt boosted Japan's economy. The goals set in Japan's 2014 "Tourism-based Country Strategy," such as raising the number of tourists to 20 million and building 10,000 duty-free shops by 2020, were either met or surpassed by 2015. As Japanese businesses' dependency on Chinese consumers' *bakugai* deepens, opinion leaders have started to ask, "What do we do if the Chinese tourists stop coming?" On the other hand, *bakugai*

has become a golden opportunity for Japan to promote the nation's image as Chinese tourists experience the superior quality and user-friendly designs of Japan's products; the courteous mannerisms and the attention to details of Japan's citizens; and Japan's well-organized, clean, and sanitary urban planning and construction. As China and Japan have strengthened their economic relationship, military and political tension has eased to a certain extent.

For the Chinese manufacturing sector and government, the *bakugai* behavior of Chinese consumers in Japan is without question a loud wake-up call. In 2015, at the height of the *bakugai* phenomenon, Chinese media revealed that most of the products purchased by tourists in Japan were made in China. This prompted all sectors to reflect on the situation. The news media, government, and business owners engaged in a large discussion following this. It was against this backdrop that China released "Made in China 2025," in an attempt to transform from the current economic growth pattern that relies on the expansion of scale to a growth pattern driven by innovation, technology, and quality improvement. Chinese consumers' *bakugai* behavior in Japan triggered a sense of crisis among domestic industries in China; if consumption cannot be retained domestically, then the Chinese economy will lack the driving force of consumption. This will be a tremendous challenge for China's economic growth.

Reformation: The Way out of the Labyrinth

The inability to transform consumption into the driving force for economic growth has continued to baffle the Chinese government and economists. The 2014 household final consumption expenditure figure for China was 36.5% of GDP, but 60.7% for Japan (World Bank 2016). The rise of the *bakugai* phenomenon has shown that China's consumers are capable of consumption but lacking an environment for consumption. In China, mid-to-high-level product prices stay high, so the purchasing power of the newly affluent class leaks out. Quality issues repeatedly occur, so consumers do not trust domestic products, and general anxiety in society is triggered. Consumer information lacks transparency, patents lack protection, and the mechanisms of competition that guarantee survival of the fittest are insufficiently functional

to the point where "bad money drives out good." Infringement of consumer rights occurs repeatedly, and the cost of protecting consumer rights is high. These issues stem from the following facts. The government is monitoring an ever changing market with limited administrative resources and sometimes falls into rent-seeking behaviors or being captured by specific interests (Stigler 1971). The development of civil society has been repressed, and there has been a failure of market governance (Yu 2006). Firms are competing to increase their scale and quantity but lack the driving force for improving quality and innovation.

To solve the problems mentioned above, China must continue to deepen reforms and establish a new market order to retain domestic purchasing power and avoid the continuous expansion of *bakugai* overseas. Government monitoring of the market should be established on bottom-line thinking and focus on safety, health, environmental protection, and anti-fraud. In reforming the standards system, the government should allow the market to offer diverse, flexible, and continuously updated standards in addition to the national basic standards. In addition to semi-official consumer associations, government oversight should allow for the formation of multi-functional consumer citizens groups by individuals or groups, such as consumer education groups, comparison test groups, and consumer legal rights protection groups, to continue to drive industry quality improvement. Such government oversight should also push for market reform processes by third-party inspection institutions and develop some number of cross-region, cross-business, cross-field, large inspection groups to provide effective quality information to consumers. There should be integration of information from different channels and the establishment of a platform for company and personal credit evaluation. There should also be revision and refinement of the legal system to make it better suited for consumer class action legal processes within China, an internal "whistle blower" system (Song et al. 2015).

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What Happens After Japanese Youth Experience a Recession

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Business cycle conditions at the timing to enter the labor market have long-term effects on employment prospects, wages, job security, and also family formation behaviors. Although such effects have been observed in many countries, they tend to be stronger and more persistent in Japan than in the Western countries.

I have been working on this topic since I was a graduate student. A very personal motivation is that I graduated from college during the severe recession in the early 2000s; I was wondering why many of my peers were still struggling in unstable employment even years after graduation. It turned out to be a quite important topic, especially after the Great Recession triggered by the bankruptcy of Lehman Brothers. In this article I focus on the studies in Japan; for the review of studies in other countries, see Kondo (2015).

Effects on Labor Market Outcomes

Pioneering studies in the 1990s already showed that business cycle conditions at graduation have long-term effects on earnings (Ohtake and Inoki 1997) and job separation (Ohta 1999, Genda and Kurosawa 2001). A cohort who entered the labor market during a recession suffer from persistent wage loss, and due to poor matching quality with the job, their separation rate is higher than the other cohorts. Genda, Kondo and Ohta (2010) extend this literature by employing more rigorous empirical strategy and adding comparison with Americans. We show that, in Japan, one percentage point increase in the unemployment rate at graduation from high school lowers earnings in the subsequent decade by about 7% for those who do not proceed to college. The size of the effect is smaller but still substantial for college graduates (about 3%). These estimates are much larger than their American counter-parts, and the relative size across groups with different educational background show the opposite pattern: in the United States, one percentage point increase in the unemployment rate at graduation lowers earnings by 1-2% for up to around six years for college graduates, whereas the effect disappears quickly for high school graduates.

We also proposed a theoretical model to explain the persistent effects for Japanese high school graduates by the following features of Japanese labor market: the high firing costs for regular employees and school-based hiring system. Since employers have to incur high firing costs, it is quite important for them to avoid hiring unproductive workers, and school-based hiring system substantially reduce the uncertainty about productivity. Hence, the employers rely on school-based hiring for the recruitment of regular workers. From the job seekers point of view, this means that opportunities to obtain a regular job are lim-

ited to new school graduates. Therefore, once a person failed to obtain a regular job upon graduation, it is difficult to catch up. The unlucky cohort suffers from long-term earnings loss because more people fail to obtain a regular job upon graduation.

This claim is backed up by my earlier study on the state dependence in employment status in Japan. Kondo (2007) shows that failing to obtain a regular job upon graduation lowers the probability of having a regular job after 10 years by about 50 percentage points. Also, the effect is not attributable to the difference in innate aptitude.

These findings are, however, based on data of cohort who graduated in the 1990s or earlier. Since the deteriorated employment prospects of youth was widely recognized as an important problem in the 2000s, the effect of a recession at graduation might have changed. Currently I am involved in a project to document the career trajectory of cohorts who graduated from college in the 1990s and 2000s, hoping to explore any changes in the 2000s.

Effects on Family Formation

Business cycle condition at youth have persistent effect on labor market outcomes. Also, labor market outcomes affect people's family formation behaviors. Hence the business cycle conditions at youth may affect family formation behaviors.

In economic theories, the sign of the effect is ambiguous. On the one hand, a decline in earnings can have a negative income effect, i.e. young couples cannot afford to marry and have children. On the other hand, poor employment prospects for young women can lower the opportunity cost of marriage and child bearing. When this positive substitution effect dominates, a recession at youth increases marriage and fertility rates. As summarized in Kondo (2016), empirically, whether an increase in the unemployment rate at youth decrease fertility differ across countries and demographic groups, and sometimes effect on marriage and effect on fertility are different even for the same population.

Regarding Japan, Hashimoto and Kondo (2012) show that a recession at entry to the labor market

has a negative effect on fertility for high school or less educated women, but the effect is positive for college (including two-year college "tandai") educated women. The negative income effect dominates for the less educated women probably because their prospective husbands also suffer from unstable employment. In contrast, most women with the two-year college education marry men with college education, so the decline in the prospective husbands' income would be modest. However, the employment opportunities for women with two-year college education themselves substantially deteriorate during a recession. Thus the substitution effect dominates for this group.

Summing up the effect for the two groups, the effect of a recession at entry to the labor market on total fertility is, on average, not statistically significantly different from zero. This may sound contradicting to the popular perception that the deterioration of the youth employment is a major cause of the declining fertility; however, the total fertility rate actually started to increase in the mid 2000s and did not decrease after the Great Recession in 2009. The relationship between family formation and business cycle conditions is not as simple as people may think.

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Takahara Akio

(Professor of Contemporary Chinese Politics at the Graduate Schools for Law and Politics, the University of Tokyo)

February 24, 2016

China's External Policies Under Xi Jinping and Implications for Japan

Faced with the difficulty in promoting a “new type of major country relations” with the United States, China has turned to Eurasia and launched the new Silk Road initiative. In this context, Takahara will explore why China is shooting itself in the foot by the power-based and not rule-based approach that it has taken in the East China Sea and the South China Sea and discuss whether Xi Jinping will cancel the rapprochement with Japan if the economic downturn becomes more serious.

(Associate Professor of Political Science at Loyola Marymount University and a visiting associate professor in the Faculty of Economics at Keio University)

Gene Park

March 17, 2016

Policy Ideas and Monetary Policy: The Bank of Japan's Delayed Break with Monetary Orthodoxy



Central bank independence is an institution designed to help keep inflation in check, but since the global financial crisis many countries have experienced worryingly low inflation or deflation. Some central banks have taken aggressive unorthodox measures such as large scale quantitative easing, while others have taken a more cautious approach. What determines the extent to which central banks have tackled the problem of low inflation? Examining the case of Japan, this paper makes the case that the policy ideas of central bankers are critical to understanding nature of the monetary response to economic downturn and low inflation. This presentation elaborates the specific ideas behind central banker choices and how the relatively closed monetary policy network that facilitated the circulation of these ideas. The presentation then presents a statistical test of this argument by employing an autoregressive model to analyze how policy ideas, as reflected in the minutes of BOJ deliberations, have impacted monetary policy.



Urata Shujiro

(Professor of Economics at the Graduate School of Asia-Pacific Studies, Waseda University, a research fellow at the Japanese Centre for Economic Research, a faculty fellow at the Research Institute of Economy, Trade and Industry, and a senior research advisor at Economic Research Institute for ASEAN and East Asia)

April 28, 2016

TPP and Japan's Economic Recovery

The Japanese economy has been performing badly since the collapse of the economic bubble in the early 1990s. Although mismanagement of macroeconomic policy has been blamed for sluggish economic performance, the more serious obstacles may be structural problems such as the shrinking and aging population and the closed nature of the Japanese economy. The Trans-Pacific Partnership (TPP) is a free trade agreement with a high level of trade and foreign direct investment liberalization and a comprehensive set of rules. The speaker argues that the TPP offers a good opportunity for the Japanese economy to recover from the long recession and to get back on the growth trajectory.

Ken Haig

(Director of Regulatory Affairs in Japan for Opower, Co-Chair of the Energy Committee at the American Chamber of Commerce in Japan, and a research associate at Hokkaido University's Graduate School of Public Policy)

June 15, 2016

Untapped Potential: Results and Policy Implications from Japan's First Large-Scale Behavioral Energy Efficiency Pilot Study



As Japan grapples with tight electricity supplies, liberalization of gas and electricity markets, and continuing pressures to reduce greenhouse gas emissions, increasing energy efficiency (EE) has become an ever-more pressing policy imperative--in particular, the need to look beyond traditional hardware-driven approaches to more behavior-driven approaches to promoting EE. While behavioral EE programs have become increasingly standard in the United States and elsewhere, there had previously been no large-scale test of how "nudge" approaches affect energy consumption in Japan. Seeking to learn from international best practices, the Ministry of Economy, Trade & Industry (METI) recently commissioned Japan's first large-scale randomized control trial (RCT) of behavioral EE, involving 40,000 households (20,000 treatment, 20,000 control) across Hokuriku Electric Power Company's service territory. This paper examines the Hokuriku pilot study results in comparison with similar studies conducted in the United States and other countries, as well as the policy implications for Japan going forward.

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Christopher Wlezien

(Hogg Professor of Government at the University of Texas at Austin.)

July 22, 2016

The Timeline of Elections in Comparative Perspective

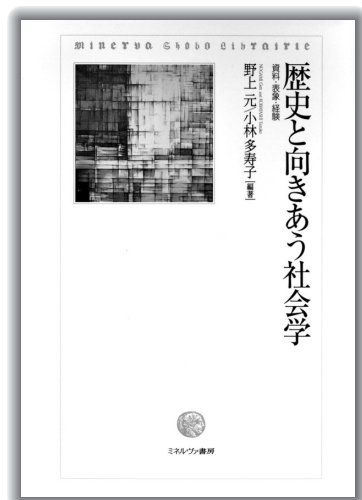
Scholars are only beginning to understand the evolution of electoral sentiment over time. How do preferences come into focus over the electoral cycle in different countries? Do they evolve in patterned ways? Does the evolution vary across countries? This paper addresses these issues. We consider differences in political institutions and how they might impact voter preferences over the course of the election cycle. We then outline an empirical analysis relating support for parties or candidates in pre-election polls to their final vote. The analysis relies on over 26,000 vote intention polls in 45 countries since 1942, covering 312 discrete electoral cycles, including five in Japan. Our results indicate that early polls contain substantial information about the final result but that they become increasingly informative over the election cycle. Although the degree to which this is true varies across countries in important and understandable ways given differences in political institutions, the pattern is strikingly general.

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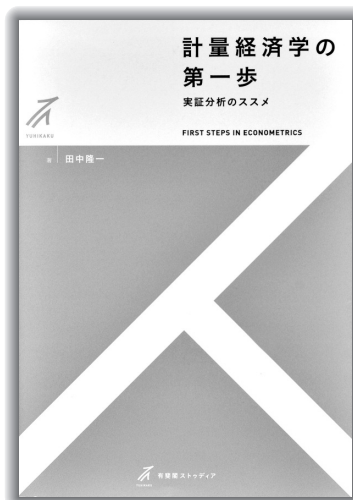
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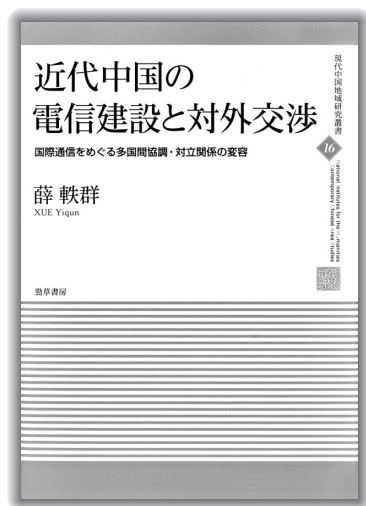
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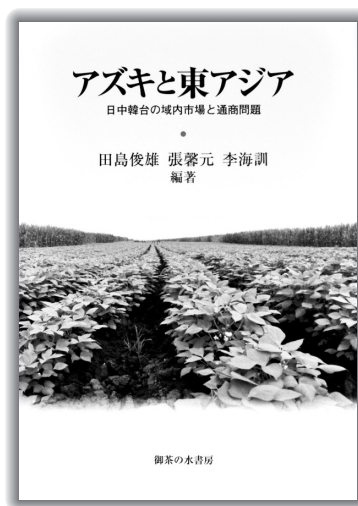
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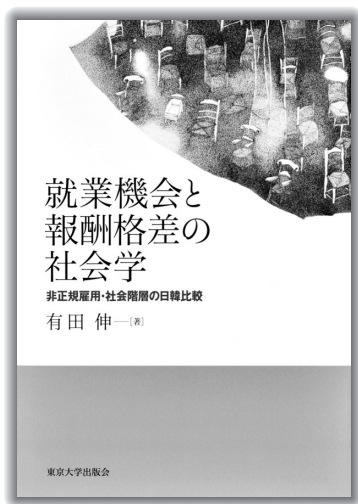
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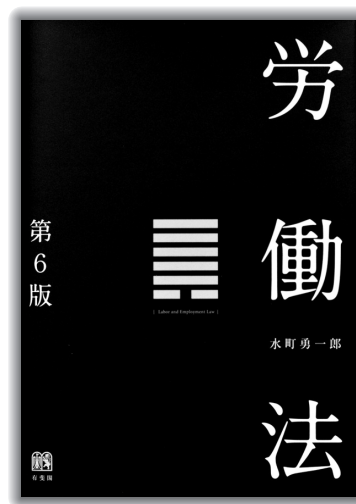
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『就業機会と報酬格差の社会学』
非正規雇用・社会階層の日韓比較』
（有斐閣）2016年3月16日



水町勇一郎（著）

『労働法 第6版』
（有斐閣）2016年3月30日



Recent Publications by ISS and ISS Staff

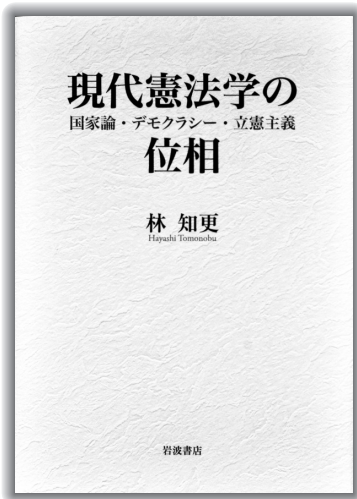
*For more publications, please visit the ISS Homepage (<http://jwww.iss.u-tokyo.ac.jp/>, <http://www.iss.u-tokyo.ac.jp/>).

林知更（著）

『現代憲法学の位相』

国家論・デモクラシー・立憲主義』

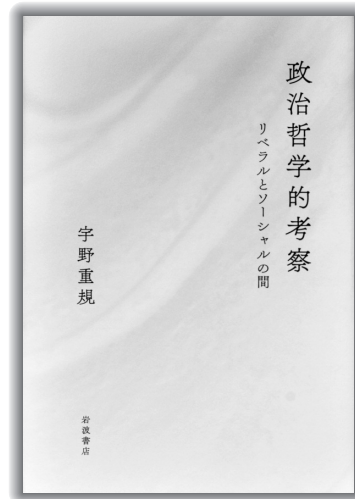
（岩波書店）2016年5月18日



宇野重規（著）

『政治哲学的考察 リベラルとソーシャルの間』

（岩波書店）2016年5月18日

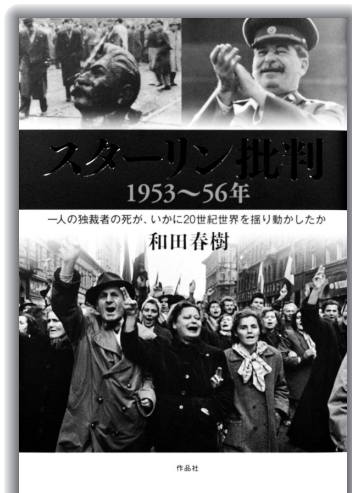


和田春樹（著）

『スターリン批判1953～56年』

一人の独裁者の死が、いかに20世紀世界を揺り動かしたか』

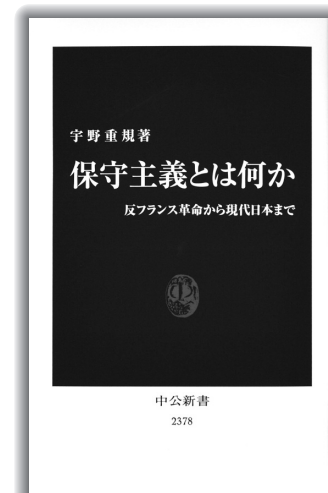
（作品社）2016年6月21日



宇野重規（著）

『保守主義とは何か 反フランス革命から現代日本まで』

（中公新書）2016年6月25日



Focus on ISS

The Social Sciences of Hope in Kamaishi: How “Kibougaku” Was Applied to Disaster Work (Part 2)

NAKAMURA Naofumi and GENDA Yuji

In the previous issue, we described how members of the Kibougaku research team traveled to Kamaishi, Iwate Prefecture, a few weeks after the Great East Japan Earthquake. We soon realized that the tools of social science were of limited utility in such disaster zone. What we could do was to venture into disaster recovery sites, listen to the people working there, and record their memories. We could do one more thing—share these first-hand accounts with the wider public. That was the sum total of what we could do, and so we began. We listened uncritically and attentively and used oral history methods to compile their narratives.

Oral Histories of Disaster Memories

What makes oral histories so valuable as historical sources is their capturing of not only what people experienced, but also how they personally frame and express their memories. The result is an unfiltered record of how people perceived their past, present, and future, the outlines of which were just becoming clear to them as the recovery inched forward. We were thus given access to “untold stories” about Kamaishi and the disaster. Local residents were more willing to open up to us because of the connections we had developed with them before the earthquake through the frank discussions that were central to the *Kibougaku* project.

These stories included voices of peoples who were not accustomed to being praised and celebrated. Instead, they were individuals who, day after day, quietly assessed what they could do, what they had to do, and then got to work.

How are people able to carry out their missions and fulfill their responsibilities under the most trying conditions? The lessons they can teach us will undoubtedly be useful for disaster recovery planning. When we first began compiling oral histories, we were immersed in the task at hand and did not think about publication. Gradually, however, as our work progressed across many visits over many months, we became convinced of the need to share their memories as widely as possible.



A Street view of Kamaishi on April 2, 2011
Photo by Ohori Ken

In July 2013, the *Kibougaku* team and Kamaishi oral history participants convened a workshop on “recollections of the disaster” in Morioka. We reviewed what people had done immediately after the quake and discussed what the next phase of the project should be. Intense discussions generated several ideas, including the possibility of publishing a book that would reveal the participants’ pre- and post-quake experiences. The culmination of all these discussions was the book we published in 2014, *Mochi-ba no kibō-gaku : Kamaishi to shinsai , mō hitotsu no kioku* (Social Sciences of Hope, People in Charge: Kamaishi, Earthquake Disaster, and Another Memory), edited by Nakamura Naofumi and Genda Yuji, Institute of Social Science, the University of Tokyo. University of Tokyo Press.

In the next issue of SSJ Newsletter, we conclude this series by describing this book in more detail.